

Docket No. RADNT-039C

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Cancelled)

Claim 2. (Cancelled)

Claim 3. (Cancelled)

Claim 4. (Cancelled)

Claim 5. (Cancelled)

Claim 6. (Cancelled)

Claim 7. (Cancelled)

Claim 8. (Cancelled)

Claim 9. (Cancelled)

Claim 10. (Cancelled)

Claim 11. (Cancelled)

Claim 12. (Cancelled)

Claim 13. (Cancelled)

Claim 14. (Cancelled)

Docket No. RADNT-039C

Claim 15. (Cancelled)

Claim 16. (Cancelled)

Claim 17. (Cancelled)

Claim 18. (Cancelled)

Claim 19. (Cancelled)

Claim 20. (Cancelled)

Claim 21. (Cancelled)

Claim 22. (Cancelled)

Claim 23. (Cancelled)

Claim 24. (Cancelled)

Claim 25. (Amended) A method for preventing or reducing the severity of kidney damage in a human or veterinary patient due to the administration, ingestion, absorption or production of, or exposure to, a nephrotoxic substance, said method comprising the steps of:

providing a heat exchange catheter that has a heat exchanger which is positionable within a blood vessel of the patient and a controller that controls the temperature of the heat exchanger;

Docket No. RADNT-039C

positioning the heat exchanger in a blood vessel the inferior or superior vena cava of the patient without entirely preventing the flow of blood around the heat exchanger; and

controlling the temperature of the heat exchanger to reduce the temperature of the patient's blood and to cool the patient's kidneys, thereby preventing or reducing the severity of kidney damage.

Claim 26. (Original) The method of claim 25, wherein the patient's kidneys are cooled prior to the administration of the substance to the patient.

Claim 27. (Original) The method of claim 25, wherein the patient's kidneys are cooled during the administration of the substance to the patient.

Claim 28. (Original) The method of claim 25, wherein the patient's kidneys are cooled after the administration of the substance to the patient.

Claim 29. (Original) The method of claim 25, further comprising the step of maintaining the reduction in temperature during the administration of the substance to the patient.

Claim 30. (Original) The method of claim 25, wherein the heat exchange catheter comprises at least one balloon containing a heat exchange fluid.

Claim 31. (Original) The method of claim 30, wherein the at least one balloon is disposed at the distal end of the heat exchange catheter.

Claim 32. (Original) The method of claim 25, further comprising a step of disrupting the laminar flow of blood around the heat exchange catheter.

Claim 33. (Original) The method of claim 32, wherein the laminar flow of blood is disrupted by one or more fins provided on the heat exchange catheter.

Docket No. RADNT-039C

Claim 34. (Original) The method of claim 25, wherein the heat exchange catheter is positioned in the patient's venous system.

Claim 35. (Cancelled)

Claim 36. (Amended) The method of claim 25 wherein the 20, comprising reducing the temperature of the patient's kidneys are cooled to a temperature that reduces ischemic injury of the kidney.

Claim 37. (Amended) The method of claim 25 wherein the 20, comprising reducing the patient's temperature is reduced to a temperature between 32 degrees Celsius and 37 degrees Celsius.

Claim 38. (Amended) The method of claim 29 25, further comprising a step of administering an anti-shivering treatment to the patient.

Claim 39. (Original) The method of claim 38, wherein the anti-shivering treatment is an anti-shivering agent selected from the group consisting of: dopamine receptor blockers; dopamine receptor agonists; kappa opioid receptor agonists; opioid agonist-antagonist analgesics; serotonin 5HT1a receptor agonists; and their pharmaceutically acceptable salts.

Claim 40. (Original) The method of claim 25, further comprising a step of monitoring the temperature of the patient.

Claim 41. (Original) The method of claim 25, further comprising steps of:
monitoring the temperature of the patient; and

Docket No. RADNT-039C

adjusting the temperature of the heat exchange catheter based on the temperature so monitored.

Claim 42. (Amended) A system for preventing or reducing the severity of renal damage due to a blood-borne substance that is toxic to the kidneys of a human or veterinary patient, said system comprising:
a heat exchange catheter insertable into a blood vessel of the patient; and
a temperature controller in communication with the heat exchange catheter to cause the heat exchange catheter to reduce the temperature of at least the a patient's kidneys to a temperature at which the substance-induced renal damage is prevented or mitigated; and
an antishivering element.

Claim 43. (Original) The system of claim 42, wherein the heat exchange catheter comprises at least one balloon containing a heat exchange fluid flowing from the temperature controller.

Claim 44. (Amended) The system of claim 42 43, wherein the at least one balloon is circumferentially disposed about the catheter to direct the heat exchange fluid in an opposite direction of blood flowing past the catheter.

Claim 45. (Original) The system of claim 42, wherein the temperature controller includes temperature monitoring means for monitoring the patient's temperature; and temperature adjusting means for adjusting the temperature of the heat exchange catheter to maintain a constant reduced temperature of the patient's kidneys.

Claim 46. (Original) The system of claim 45, wherein the temperature adjusting means adjusts the temperature in response to the temperature monitored by the temperature monitoring means.

Docket No. RADNT-039C

Claim 47. (Original) The system of claim 42, wherein the heat exchange catheter comprises a flow disruption device to disrupt the laminarity of blood flow around the catheter.

Claim 48. (Original) The system of claim 42, wherein the temperature controller controls the temperature and flow of heat exchange fluid flowing through the heat exchange catheter.

Claim 49. (Cancelled)

Claim 50. (Amended) The system of claim 49 42, wherein the anti-shivering element comprises a blanket.

Claim 51. (Amended) The system of claim 49 42, wherein the anti-shivering element comprises a quantity of an anti-shivering agent and apparatus for administering that anti-shivering agent to the patient.

Claim 52. (Original) The system of claim 51 wherein the anti-shivering agent is selected from the group consisting of: dopamine receptor blockers; dopamine receptor agonists; kappa opioid receptor agonists; opioid agonist-antagonist analgesics; serotonin 5HT1a receptor agonists; and their pharmaceutically acceptable salts.